

# Contents

## Editorial

### Letters to the Editor

#### A $^{13}\text{CO}(2-1)$ map of M82

Loiseau, N., Reuter, H.-P., Wielebinski, R., Klein, U. L1

Influence of the axial-vector coupling constant on solar models; solar neutrino fluxes, helium content and oscillations

Lebreton, Y., Berthomieu, G., Provost, J., Schatzman, E. L5

Monoenergetic relativistic electrons in the galactic center

Lesch, H., Schlickeiser, R., Crusius, A. L9

Studies of symbiotic stars. II. V1016 Cygni: a binary of 6.0 yr period with variable dust obscuration

Munari, U. L13

Faint distorted structures in the core of A370: Are they gravitationally lensed galaxies at  $z \approx 1$ ?

Fort, B., Prieur, J.L., Mathez, G., Mellier, Y., Soucail, G. L17

The central star of NGC 7027

Walton, N.A., Pottasch, S.R., Reay, N.K., Taylor, A.R. L21

Transition probabilities for infrared lines of Co, Ni and A observed in SN 1987A

Nussbaumer, H., Storey, P.J. L25

New analysis of the solar  $p$ -mode frequency change from 1980 to 1986

Gelly, B., Fossat, E., Grec, G. L29

Absence of any characteristic correlation length in the CfA galaxy catalogue

Coleman, P.H., Pietronero, L., Sanders, R.H. L32

## Cosmology

Dark matter decay and flat rotation curves

Sommer-Larsen, J. 1

## Extragalactic astronomy

The true shapes of clusters of galaxies

Di Fazio, A., Flin, P. 5

Broad emission line variability in the Seyfert 1 galaxies NGC 5548 and NGC 3783

Stirpe, G.M., de Bruyn, A.G., van Groningen, E. 9

E1 Evidence for an accretion disc in Akn 120  
Alloin, D., Boisson, C., Pelat, D. 17

(RN) Parameter estimates for the orbits of M 32 and NGC 205 about the centre of mass of the M 31 system  
Cepa, J., Beckman, J.E. 21

(RN) Search for  $\text{H}_2\text{O}$  maser emission in nearby galaxies  
Huchtmeier, W.K., Eckart, A., Zensus, A.J. 26

A circumnuclear ring of enhanced star formation in the spiral galaxy NGC 4321  
Arsenault, R., Boulesteix, J., Georgelin, Y., Roy, J.-R. 29

## Galactic structure and dynamics

IRAS edge-on view of our Galaxy: the disk  
Habing, H.J. 40

## Formation, structure and evolution of stars

Comparison of different radiation transfer treatments in planetary nebulae  
Bässgen, G., Bässgen, M., Grewing, M. 51

Protostellar evolution. I. The behaviour of the Eddington factor and the accretion shock  
Balluch, M. 58

(RN) X-ray and optical observations of the old nova V 603 Aquilae  
Haefner, R., Pietsch, W., Metz, K. 75

The origin and evolution of the WR binary V 444 Cygni  
De Greve, J.P., Doom, C. 79

Are luminous asymptotic giant branch stars all of spectral type MS? Evidence from spectroscopic and photometric observations of LMC stars  
Lundgren, K. 85

A detailed study of HH 34 and its associated jet  
Bührke, T., Mundt, R., Ray, T.P. 99

The stability of a differentially rotating thin disk  
Schmitz, F. 120

Equilibrium structures of differentially rotating self-gravitating gases  
Schmitz, F. 127

Duplicity in the solar neighbourhood. IV. Spectroscopic orbits for four dwarf M stars  
Duquennoy, A., Mayor, M. 135

## Stellar atmospheres

- The dynamical state of the atmosphere of the supergiant  $\alpha$  Scorpii (M 1.5 Iab)  
*de Koter, A., de Jager, C., Nieuwenhuijzen, H.* 146
- Time-dependent corona models: a numerical method  
*Korevaar, P., Van Leer, B.* 153
- An abundance and kinematical analysis of four early-type high latitude stars  
*Conlon, E.S., Brown, P.J.F., Dufton, P.L., Keenan, F.P.* 168
- (RN) 88 Tauri A, a spectroscopic quintuple system  
*Burkhart, C., Coupry, M.F.* 175

## Diffuse matter in space (including HII regions and planetary nebulae)

- Planetary nebulae and the pregalactic helium abundance  
*Maciel, W.J.* 178
- Observations of the galactic anticentre region in the direction of PKS 0607+17 with the UTR-2 and RATAN-600 radio telescopes  
*Krymkin, V.V., Sidorchuk, M.A.* 185
- Organo-sulfur chemistry in dense interstellar clouds via S<sup>+</sup>-hydrocarbon reactions  
*Smith, D., Adams, N.G., Giles, K., Herbst, E.* 191
- Radio observations in the fields of COS-B gamma ray sources. IV. First quadrant sources  
*Özel, M.E., Schlickeiser, R., Sieber, W., Younis, S.* 195

## The Sun

- Solar calibration of asteroseismology  
*Gelly, B., Fossat, E., Grec, G., Schmider, F.-X.* 207
- How comparison between observed and calculated  $p$ -mode eigenfrequencies can give information on the internal structure of the Sun  
*Dziembowski, W.A., Paternó, L., Ventura, R.* 213

## The solar system

- Changes in the Earth's rate of rotation between A.D. 1672 and 1806 as deduced from solar eclipse timings  
*Stephenson, F.R., Lieske, J.H.* 218
- A source map for dust jets observed in the coma of comet P/Halley  
*Rabinowitz, D.L.* 225

## Celestial mechanics and astrometry

- The principle of equivalence and the Trojan asteroids  
*Orellana, R.B., Vucetich, H.* 248
- ESAPHO: a semi-analytical theory for the orbital motion of Phobos  
*Chapront-Touzé, M.* 255
- Analysis of astrometric observations from 1967 to 1983 of the major satellites of Saturn  
*Taylor, D.B., Shen, K.X.* 269

## Physical and chemical processes

- Supernova remnants and the interstellar medium: constraints from cosmic-ray acceleration  
*Wandel, A.* 279
- Stark broadening along a homologous sequence of noble gas atomic lines in dense plasmas  
*Vitel, Y., Skowronek, M., Dimitrijević, M.S., Popović, M.M.* 285
- Turbulent viscosity  
*Canuto, V.M., Goldman, I., Chasnov, J.* 291

## Instruments, data processing, and computational methods

- Very high resolution imaging using sub-pupil apertures, re-centering and selection of short exposures  
*Lelièvre, G., Nieto, J.-L., Salmon, D., Llebaria, A., Thouvenot, E., Boulesteix, J., Le Coarer, E., Arnaud, J.* 301
- The Multi-Resolution Clean and its application to the short-spacing problem in interferometry  
*Wakker, B.P., Schwarz, U.J.* 312

## Abstracts of articles which have been published in A. &amp; A. Suppl. Ser. 73, No. 2

- Atlas of the wavelength dependence of ultraviolet extinction in the galaxy  
*Aiello, S., Barsella, B., Chlewicki, G., Greenberg, J.M., Patriarchi, P., Perinotto, M.* 323
- Long-term monitoring of the water maser Cepheus A  
*Mattila, K., Toriseva, M., Liljeström, T., Anttila, R., Malkamäki, L.* 323
- Study of AG Carinae. I. The 1977 spectrum of the star  
*Hutsemékers, D., Kohoutek, L.* 323
- Four-color  $uvby$  and H $\beta$  photometry of high-velocity and metal-poor stars. I. The catalogue of observations  
*Schuster, W.J., Nissen, P.E.* 324
- A catalog of interplanetary type III storms  
*Kayser, S.E., Bougeret, J.-L., Fainberg, J., Stone, R.G.* 324
- Photometry and analysis of the eclipsing binary V 909 Cygni  
*Gülmen, Ö., Sezer, C., Güdür, N.* 324
- A radio survey of clusters of galaxies. VI. More observations of 34 Abell cluster areas at 11.1, 6.3 and 2.8 cm and a preliminary statistical review of data in papers I-VI  
*Andernach, H., Han Tie, Sievers, A., Reuter, H.-P., Junkes, N., Wielebinski, R.* 325
- Spectrophotometry of new symbiotic stars  
*Acker, A., Lundström, I., Stenholm, B.* 325
- Activity in the central parts of interacting galaxies: an investigation of six southern systems  
*Johansson, L.* 325
- Four-colour  $uvby$  and H $\beta$  photometry of all A 3 to F 5 stars brighter than  $m_{\text{pg}} \approx 11^{\text{m}}0$  in 6 Selected Areas close to the Galactic Plane  
*Franco, G.A.P.* 326

